The Frequency and Type of Talk in Three New Zealand Families at Dinnertime

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Abstract

Language is an important aspect of communication and a parent is a child's first teacher. The more variety of talk the parents use, the more opportunities children will get to imitate that language and therefore widen their vocabulary. This study was based on the work of Hart and Risley (1995). The purpose was to observe the frequency and type of talk, the number of encouragements and discouragements, and the non-verbal interactions that occurred at the homes of dinnertime in three New Zealand middle and high income Families. Each family consisted of two adults and two children aged between 3 and 6 years. Data was collected via videotape. The results indicate that the higher income families had a higher frequency of talk and used more variety of talk. Contradictory to previous studies, the middle income family used more encouragements than discouragements with their children while the higher income families used more discouragements to encouragements. The middle income family also used the lowest number of non-verbal interactions. There was little exploratory talk included in the dinnertime conversations between family members. An implication of these findings is that, in order for children to extend their vocabulary, families could use more exploratory talk so that this could occur.

CHAPTER 1

Introduction

Aristotle once stated that humans are social creatures (McCarthy, 1992). In western society, language is the primary form of interaction and is central to social development. The vocabulary that children possess when they arrive at school works as a foundation for their future academic and social learning. By the time a child begins school at 5 years of age, they would typically have a vocabulary of 3000 words (Huttenlocher, Waterfall, Vasilyeva, Vevea, & Hedges, 2010). This number may be less if the exposure to language they receive is low at home. Without good exposure and practice of language at home, a child may struggle at school due to their poor levels of language and literary skills. As a result, they may not be able to keep up with the other children and therefore may require extra assistance, thus putting them behind their peers at school (Juel, 1988). Due to cognitive experience being sequential, the lack of language experience children have when they are young make the foundation for seeking, noticing, and incorporating more complex language in the long term difficult (Hart & Risley, 2003).

Theoretical Underpinning of Language Development

For language development to occur, Bronfenbrenner (1994) stated that both subjective and objective experience is important. The ecological theory states that the immediate system that affects and influences a child's growth and development include the child's family. Due to proximal processes, children will spend most of their time with their parents. This then makes the child's home environment a vital role in children's language acquisition, as children spend most of the time with their family and therefore interact and converse most with them (Fletcher, Cross, Tanney,

Schneider, & Finch, 2008; Greenwood, Thiemann-Bourque, Walker, Buzhardt, & Gilkerson, 2011; Hart, & Risley, 1992).

The ecological model developed by Bronfenbrenner (1994) explains the different influences an individual has throughout their life in various areas of development. One of the first social interactions a child has is with their family (Bronfenbrenner, 1994; Hart, & Risley, 1992;1995). The child's social learning begins and expands through the language that the child is exposed to via various 'systems'. In the ecological model, there are five different systems which influence a child's growth and development: these include the micro-, meso-, exo-, macro-, and chronosystems. The first, most immediate system for the individual is the microsystem. The microsystem consists of the patterns of activities, social roles, and interpersonal relationships experienced by the child in a given face-to-face setting with particular physical, social, and symbolic features that invite, permit, or inhibit engagement in sustained, progressively more complex interaction with, and activity in, the immediate environment. One of these settings is family, along with preschool, school, peer groups, and workplace. The way the child's family and especially the child's elders (who have a more extensive range of language) converse with the child is highly important in the development of the child's language skills and this will later aid the child in their social interactions outside of home (Hindman, Skibbe, & Foster, 2014).

Along with the ecological model, Albert Bandura's Social Learning Theory also explains ways in which children learn behaviour and language. The Social Learning Theory (SLT) states that learning is a cognitive process that occurs in a social context. Learning occurs through observation or direct instruction, with or without motor

reproduction or direct reinforcement (Bandura & Walters, 1977). Bandura developed this theory after conducting a study in which he and his colleagues tested the probability of children's aggression levels after exposing them to acts of aggression towards a Bobo doll (Bandura, Ross, & Ross, 1961). In this experiment, they tested 36 boys and 36 girls, aged between 3 to 6 years old. These children were split into three random groups where one group was shown a model that performed aggressive acts towards the bobo doll. The second group were shown a non-aggressive model, and the third group was a control where no model was shown. The results showed that children who were exposed to the aggressive model made a much higher number of imitative aggressive responses than those who were shown the non-aggressive model or no model. Their results showed that modelling and imitation played a major role in learning for children especially when sensory reinforcement was present. They concluded that imitation influenced the initial acquisition of behaviour and sensory reinforcement determined the maintenance of that behaviour. Hayes, Rincover, and Volosin (1980) conducted a variation of the bobo doll experiment where they tested for the effects of sensory reinforcement, to which they found supportive results to the original bobo doll experiment.

Bandura, Ross, and Ross (1963) further supported the Social Learning theory through their study on film-mediated aggression. For this study, they separated 48 boys and 48 girls, who were enrolled at Stanford University Nursery School, into four groups. These children were aged from 35 to 69 months, with a mean age of 52 months. One group were exposed to real-life aggressive models, the second group were exposed to the same models portraying aggression on film, the third group were exposed to an aggressive cartoon, while the fourth group was a control group and were not exposed to any form of aggression. The children that viewed the aggressive

acts were twice as aggressive as the children who were not exposed to any aggressive acts suggesting that exposure to aggression increases aggression in children. Furthermore, children that were exposed to the real life model showed more aggressive behaviours than the children who were exposed to filmed aggression. This finding showed that children tend to learn what they witness.

Imitation is also prominent in how children develop language. Bloom, Hood, and Lightbown (1974) explored the function of imitation for first language learning. In this study, imitative and spontaneous utterances were compared in the naturalistic speech of six children over the course of their development from single-word utterances to the emergence of grammar. They found that, although there were individual differences in how much imitation occurred, each child showed consistency in imitating their parents'/caregivers' speech. This evidence suggests that children actively imitate language and behaviours from their parents regardless of whether the parents intended for this to occur.

What children are exposed to is what they learn and therefore if they are exposed to an extensive range of vocabulary, they are more likely to replicate a wider range of vocabulary. As family is initially a child's main source of learning language, it is important for the language at home to be extensive and comprehensive so that the child is exposed to high quality language and be able to replicate this. The two most important factors that are important in language development is being exposed to language and also receiving enough encouragement to expand on their speech (Huttenlocher, et al., 2010).

Developmental Stages of Language

The potential academic success of a child has been linked to the frequency and type of talk a child is exposed to when they are young (Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009). Typically, children say their first words at around 12 months of age. At 18 months of age children typically use 50 words and this increases to around 200 to 300 words by 24 months. At 3 years, children can use anywhere between 500 to 1,100 words in their everyday vocabulary and that number can increase to between 3000 and 5000 words between the ages of 5 and 7 years. Ideally by 3-4 years of age, a child would be able to understand a variety of language used by their parents and be able to follow directions with at least two steps. They should be able to speak in complete sentences of four or more words, and be able to talk easily without stuttering or repeating words or syllables. They should also be able to say or sing familiar songs or nursery rhymes, correctly name colors, people, objects, categorize these objects, and be able to speak clearly enough so that strangers can understand them. Children should also be able to use most speech sounds, use appropriate verb tenses, and be able to use the pronouns "I", "you", and "me" correctly (Santrock, 2014).

Language development is also considered to be very important in ensuring a better life for individuals because language helps develop good social skills and behavioural regulation (Aro, Eklund, Nurmi, & Poikkeus, 2012) and decrease conduct problems (Kaiser & Hesler, 1997). Aro, Laakso, Määttä, Tolvanen, and Poikkeus (2014) showed that toddler aged children with low levels of language development had difficulties with self-regulation at kindergarten-age compared to those children with typical early language development. This could be due to children with lower

language skills expressing their emotions and feelings through negative behavioural actions as they cannot verbally communicate their needs successfully.

Teachers have reported that children are starting school with poor language skills and hypothesise that this may be due to the lack of language these children are exposed to prior to starting school. This is the prominent reason why researchers focus their work on the acquisition (or not) of language in children in the home environment. A number of studies (Bee, et al., 1982; Hart & Risley, 1995; Huttenlocher, et al., 2010; Jordan, Snow, & Porche, 2000; NICHD Early Child Care Research Network, 2000; Petrill, Pike, Price, & Plomin, 2004; Pungello, et al., 2009; Vernon-Feagans, Garrett-Peters, Willoughby, & Mills-Koonce, 2012) have taken place to observe, not only the development of language but also what influences this development. The overall results suggest that it is the number and type of interactions that children have with their caregivers/parents from birth which has the most influence in the development of a child's language and development.

Factors affecting Language Development

A number of studies indicate that children from low socio-economic families are slower in their language development than children from higher socio-economic families. Conversely, there are also other studies which suggest that there are some factors that result in children's poor language development which are not directly correlated to the socio-economic status of the families.

Family ecology. The dynamics within a household have an impact on children's language acquisition and development. Bee et al., (1982) found that family ecology was strongly related to IQ and language development of children in socio-economic families. One hundred and ninety-three mothers and their infants were selected from

among births that occurred between 1973 and 1974 at a large Health Maintenance Organization hospital in Seattle, Washington. The study found that children from families that had higher social support, maternal education and lower stress levels had higher IQ and more variety in their language than children from families with high stress levels, low maternal education, and low social support. However, if the household in low socio-economic families had lower stress levels, could provide good language exposure, had good support from external groups (e.g., church, sports groups etc) and the mother was educated, then the children's language development was at the same level as that of children from high socio-economic families.

Jordan et al. (2000) found that children that have a linguistically rich home life during their early years had better knowledge of letters, had more phonological awareness, more familiarity with environmental print, had the ability to recognise the meaning of words, and were more likely to learn to read without difficulty. These results were supported by Vernon-Feagans et al. (2012) who also found that household organisation, as opposed to disorganization, accounted for variance in children's receptive and expressive language. Likewise, Petrill et al. (2004) found that socio-economic status and the level of chaos (as measured by the Confusion, Hubbub and Order Scale; CHAOS: Matheny, Wachs, Ludwig, & Phillips, 1995) in a family significantly mediated the stability of verbal and nonverbal cognitive skills for children at aged 3 and 4 years. They found that chaos at home was more of a significant factor than socio-economic status. It was the chaos at home that caused stress levels to increase for the family which lead to less quality time and therefore less quality conversations with the children.

Caregiver's type of talk and frequency of talk has shown to be one of the main factors in determining a child's later speech. Huttenlocher et al. (2010) found that even though there were significant differences between 47 individual children it was the diversity of earlier caregiver speech that was the predictor of corresponding diversity in the child's later speech. They also found that the caregiver's language towards the child when the child was older was dependant on the number and type of words spoken by the child when they were younger, which suggests a mutual influence in language development. These results were supported by Song, Spier, and Tamis-Lemonda (2014) who videotaped 70 mother-child (2 and 3 years old) dyads and analysed the transcripts for quantity and lexical diversity (type of language used) of maternal and child language. The children's cognitive development was assessed at both ages and the child receptive vocabulary was assessed at age 3 years. They found that the language used by the mothers was related to the child's lexical diversity at each age. They also found that the language used by the mother when the child was 2 years old was related to the receptive vocabulary and cognitive development of the child at 3 years old. The language used by the mothers to their child at 3 years of age was also related to the cognitive development of the child at age 2 years. This finding indicates a reciprocal relationship between maternal language and the child's cognitive and language development.

Mother-infant specific interactions appear to influence language development in young children. Bee et al. (1982) found that interactions such as during feeding, reading, and general environmental quality (of the household and surroundings of the child) between mothers and their children were among the best predictors of child IQ and language development even when compared to the physical wellbeing of the infant child, and assessment of child performance at 24 months of age. The mother's

quality and frequency of reading was shown to have a positive relationship with their children's language development.

Fletcher et al. (2008) found that 87 caregivers' use of expansions and questions with their 24-month-old child during reading was related to an increase in frequency of child's expressive language at 30 months of age. Robins, Treiman, Rosales, and Otake (2012) found that lower socio-economic families, when helping their child to become more aware of letters, shapes of letters, and differentiating them from pictures, tended to focus on alphabetical order than the higher socio-economic status families. Their results suggest that everyday interactions are an important component of the home literacy environment, but this varies from family to family.

Quiroz and Dixon's (2012) study showed that the language growth that occurs at home is not only useful for the child at school but also found that compounded support for language was created when continuity was present between the home and school environment. This finding suggests that maintaining a school language environment that preserves the mother-child communication and its positive association with learning would yield the best educational outcomes for the children.

Gender differences. Gender of the child appears to play a role in language development in children. Longobardi, Spataro, Frigerio, and Rescorla (2016) found in their study of 268 children aged between 18 and 35 months, girls had a significantly higher vocabulary than boys and also found that low levels of language ability correlated to low levels of social competence. These results were supported by Eriksson et al., (2012) who found in their study of 13,783 children aged between 1 month and 30 months, girls were marginally ahead of boys in productive vocabulary,

combining words, and early communicative gestures. Both these findings indicate that girls are likely to be more communicative than boys, especially in their earlier years.

Socio-economic status, language acquisition and development. There is evidence to suggest that socio-economic status has a major influence on the language and cognitive development of children. Snow (2007) investigated the relationships of false-belief understanding (FBU), language development and home environment for pre-schoolers raised in low and high socio-economic homes. This study included 38 preschool children and their primary caregivers. The data was collected during one home visit using a variety of measures. What the results show was that children from low socio-economic homes demonstrated FBU at a later stage in their development when compared to their higher socio-economic peers. They also found that FBU performance is highly correlated with general language ability, in that children from low socio-economic status homes were less exposed to complex syntax and social discourse than their peers in high socio-economic homes.

Pungello et al. (2009) observed the factors in different socio-economic groups that correlated with language and cognitive development. Their findings highlighted the importance of sensitive parenting and also suggested that family context played a major role in language acquisition and cognitive development no matter what the socio-economic status of the families. They suggest it is more the way the parenting was undertaken that mattered than the financial situation of the family. However, there were factors that affected the financial situation of a family that in turn effected the parenting style. The authors suggest that further research needs to be conducted to examine the association between demographic variables and the language input and output experienced by children.

Letourneau, Duffett-Leger, Levac, Watson and Young-Morris (2013) conducted a meta-analysis that was aimed at finding the degree to which socio-economic status supports or limits children and adolescents behavioural, cognitive, and language development. The objective of this study was to observe the relationship between composite measures of socio-economic status and developmental outcomes for children and adolescents (between birth to 19 years of age). These findings found a significant but small relationship between socio-economic status and cognitive, and language development, but found that the neighbourhood the family lived in had a significant relationship with the behavioural development of the child. Family characteristics were more significantly correlated with academic achievement than socio-economic status and mediators such as individual, familial, and community factors almost always played a major role in this correlation.

Language Differences between Socio-Economic Families

There is a body of research which found a relationship between socio-economic status and language acquisition and type of talk. To investigate the main language differences between different socio-economic families, Hart and Risley (1992; 1995) conducted two studies and observed the language development of young children and the effects that parent talk had on children's language development. They selected 42 families that represented a range of typical American families across different cultures and socio-economic status. The families were grouped into three socio-economic categories. These groups were based on the parents' occupations. The three groups included professional families, working class families, and families who were on welfare. All the families were recorded via tape recorders (audio recording) from when the (average) age of child was 9 months old to 3 years of age. These families

were recorded for one hour each month for almost two and a half years. All the families were considered to be well-functioning and the children varied according to their gender, birth order, number of siblings, and family structure.

Hart and Risley (1995) found that while all children from the different backgrounds typically developed language skills at around the same age, the subsequent rate of vocabulary growth and type of talk was strongly influenced by how much their parents talked to the child. Professional families were found to talk more to their children and these children gain vocabulary at a faster rate than the children from the working and welfare class families. On average children from professional families, by the age of 3 years, heard around 11 million words. Children from working class families heard around six million words, and children from welfare families only heard around three million words. They also found that children from professional families heard a higher rate of encouragements to discouragements in comparison to their working class and welfare-supported counterparts.

Greenwood et al. (2011) conducted a study that aimed to replicate and extend Hart and Risley's (1995) work. Twelve, hour-long digital audio recordings were obtained in the homes of middle and higher socio-economic families in a sample of 30 typically developing infants and toddlers. They used a measurement framework based on the work of Hart and Risley (1995) to process these recordings. They found results that were consistent with Hart and Risley's (1995) findings. They also found that the child of the most talkative parent was also the most talkative child and produced more vocalisations and conversational turns month to month when compared to the children of the least talkative parent. This finding again indicates how important language at home is in aiding a child's language development.

The frequency of talk and type of talk at home is vital in ensuring a successful future for a child as it influences how they progress in preschool and school, and also influences their interaction with their peers and other adults in their lives. The variety in parents' language and frequency of language at home is important for the child to be able to learn an extensive range of language. Even though there has been previous research in the area of families' socio-economic status and its effect on language development there is no current research (21 years on from the study conducted by Hart and Risley, 1995) on the amount and type of talk used in families from different socio-economic status in the New Zealand context.

Aim for Thesis

This study aimed to observe the differences, if any, between the frequency and type of talk, the number of encouragements and discouragements, and the non-verbal communication used at dinnertime between New Zealand families from different income groups.

CHAPTER 2

Literature Review

The purpose of this chapter is to provide an overview of the literature that has examined the frequency and type of talk that occurs between parents and their preschool aged children in the home setting during dinnertime. This includes literature that has explored the variation in language spoken in home settings amongst families of different income backgrounds.

The studies reviewed in this chapter were obtained using database searches of PsychInfo, PsycARTICLES, and ERIC. Specific settings were applied to narrow the focus of the search. The settings applied were: peer-reviewed, English language, human participants and participants in their preschool years (2-5 years of age). The search terms included a combination of the words ‘interaction’, ‘talk’, ‘verbalisation’, ‘home’, ‘dinner’, ‘parent’, ‘adult’, ‘child’, ‘parent–child interactions’, ‘frequency of talk’, and ‘types of talk’. This search yielded 145 articles from PsycInfo, 30 from PsycARTICLES, and 156 from the ERIC databases. A search by author name, ancestry searches, and manual search of current issues of appropriate journals was also undertaken but no additional studies were identified. Only studies with pre-school aged children were included because the current study observed the language children were exposed to over dinnertime before they started school.

Studies were included in the review if they met the following criteria: (1) the children were preschool aged (6 years or under). Six years was selected as this is the age children legally have to attend school in New Zealand, (2) the children were 'typically developing' (i.e., did not have a disability), (3) the research was published in English, (4) data had been collected either by direct observation or by recording

dialogue (either through audiotapes, videotaping, or direct observation) of the participants, and (5) talk was recorded in the naturally occurring environments.

After applying this inclusion criterion, 14 studies were included in this review. Each of these studies are summarized in Table 1. Table 1 provides an overview of the design of these studies, the participants, the measures, dependent measures, reliability, and results for the study. All of the 14 studies included in the review were descriptive in their design. No studies were found that observed families in the New Zealand context.

Participants and Settings

Overall, approximately 1159 children, 290 parents/caregivers, and 209 families were involved in the 14 studies. The exact number could not be determined because some studies only detailed the number of families that participated in the study and did not break this down to the number of children or adults in each family. Four of the fourteen studies specified the number of boys and girls (Curenton, Craig, & Flanigan, 2008; Fernald, Marchman, & Weisleder, 2013; Hart & Risley, 1992; Rush, 1999). The children's ages ranged over all studies from 6 months to 6 years.

There were 11 studies which included parents and children while five studies reported only child data. Of the 14 studies, five of studies were from low income, eight studies included families from low, medium, and high socio-economic status (SES), while one study provided no detail on SES.

Of the 14 studies, eight studies used parent and child dyads (Curenton, et al., 2008; Fernald, et al., 2013; Fletcher et al., 2008; Hart & Risley, 1992; Huttenlocher et al., 2010; Rush, 1999; Schlieper, 1975; Song et al., 2014). Hart and Risley (1995),

Norman-Jackson (1982), and Pungello et al. (2009) included families of undetermined structures as they only specified their participant families as being intact or not intact and they did not state the number of children in each family. The remainder of the studies utilized only children as their participants (Greenwood et al., 2011; Robins, Ghosh, Rosales, & Treiman, 2014; Robins et al., 2012).

Dependent measures

From the parent/child interaction studies, Fletcher et al. (2008), Norman-Jackson (1982), Rush (1999), Schlieper (1975), and Song et al. (2014) included data from low-income families only, while Curenton et al. (2008); Fernald et al. (2013); Greenwood et al. (2011); Hart and Risley (1992; 1995); Pungello et al. (2009); Robins et al. (2014); Robins et al. (2012) included data on the differences between socioeconomic status. Only three studies included data on the number of parent/caregiver encouragements and/or discouragements (positive or negative talk) to children (Hart & Risley, 1995; Norman-Jackson, 1982; Pungello et al., 2009).

Observation procedures

Four methods of direct observations were used over the 14 sourced studies. Three studies used audiotapes, five studies used videotaping, one used a survey and interviews to record their findings. Two of the sourced studies were meta-analyses.

The duration of the direct observations ranged from 10-minute intervals over an hour (Song et al., 2014) to 12 hours at a time (Greenwood et al., 2011) with most studies taking observations over 4-6 months. Overall in the 14 studies, sixty-minute direct observations were the most common. Seven studies were longitudinal in nature (Fernald et al., 2013; Fletcher et al., 2008; Greenwood et al., 2011; Hart & Risley,

1992; 1995; Norman-Jackson, 1982; Pungello et al., 2009) covered a time period of 6 months to 2.5 years. These studies provided information regarding the way early language exposure influenced the frequency and type of young children's language development. In different socioeconomic families, correlations between parent/caregiver talk and the child's talk, whether the education level of mothers affected the frequency and type of talk in the families, and associations between ethnicity, SES, maternal sensitivity, and language development were reported.

As it can be seen in Table 1 below, inter-rater reliability was analysed in ten of the 14 studies. The ten studies that undertook reliability checks used an *agreement vs disagreement* method of analysis with inter-coder agreement ranging from 88% to 100% accuracy in agreement.

Income Status

Seven studies investigated the effect income status of families had on the frequency and type of language and the cognitive development of the children in the families. Fernald et al. (2013); Hart and Risley (1992; 1995); Huttenlocher et al. (2010); Norman-Jackson (1982); Pungello et al., (2009); Robins et al. (2012); Rush (1999); Song et al. (2014) suggest that there were significant differences in the frequency of language and the type of talk used in families in the different income groups. They also found that higher SES families spoke more variety of words, as well as a higher number of words to their children than in the lower SES families.

In contrast, Schlieper (1975) did not find any differences in the attentiveness of mothers from lower SES to mothers from middle SES families. Their findings showed that mothers in lower SES were just as receptive as the middle class mothers and their children, and they were equally likely to help, contact, teach, cooperate, and

reassure their children as the middle SES mothers did. However, the manner or style in which these behaviours were undertaken were different between the different SES groups.

Frequency of Talk

At home, the frequency of talk varied across the different SES families. Three studies reported on the number of words spoken. Fernald et al. (2013), Greenwood et al. (2011), Hart and Risley (1995) all reported on the total number of words spoken by the parents and children in the different SES families. Overall, their results showed that children from lower SES families spoke significantly fewer words than children from higher SES families. Fernald et al. (2013) found that one of the main reasons SES played a major role in the parent-child interactions was due to parental stress levels being higher in lower SES families than in higher SES families which in turn placed lower SES parents under more stress and as a result they tended to respond less sensitively towards their children. They also found that those infants whose mothers talked with them more at 18 months, were those who learned more vocabulary by 24 months. Furthermore, those infants who experienced a richer level of language were also more efficient in real-time language processing at 24 months compared to those that heard less maternal talk. These results were supported by Fletcher et al. (2008), Greenwood et al. (2011), Huttenlocher et al. (2010), and Rush (1999).

Hart and Risley (1995) conducted their study with 42 families, of which 13 were professional families, 23 were working class, and 6 were welfare families. The children were between 7 to 9 months old when the data collection first started and were around 3 years old when the data collection finished. Hart and Risley (1995) used direct observation audio recordings to collect data over a period of 2.5 years. The

findings showed that parents from professional families spoke 2,150 words per hour to their children while working class parents spoke only 1,250 words per hour while parents from welfare families spoke 620 words per hour to their children. Therefore, over a year the children in the professional families heard a total of 11 million words, while the children of working class families heard a total of 6 million words, and children of welfare families only heard 3 million words. By the age of four, children from welfare families heard 32 million words fewer than the children of professional families. Hart and Risley (1995) further reported that the acquisition of new words occurred more rapidly for children from professional families than for children from working class or welfare families. At 3 years of age, there was a significant difference in the number of new words acquired by children from professional families compared to working class and welfare families. While the children from the professional families had a cumulative vocabulary of 1100 words, the children from the working families had a cumulative vocabulary of 750 words, and the children from welfare families had a cumulative vocabulary of only 500 words.

Parent-child interactions

A parent's employment usually determines the income status of a family and the type of employment usually relates to the education level of the parents. Curenton et al. (2008) observed 33 mothers and their pre-school aged children while doing a storybook reading activity. They were observing the decontextualisation of text across story contexts between mothers with different levels of literacy skills. They found that mothers who had advanced literacy skills made more decontextualised comments, questions, and used more mental and linguistic verbs during the storybook reading session when compared to mothers who had poorer levels of literacy skills. The

results indicate that the better educated the parents, the better quality of language the children were exposed to during their interactions. Greenwood et al. (2011) and Hart and Risley (1995) found similar results in that mothers who were more educated produced a higher frequency of language, so as a consequence their children were exposed to a higher frequency of talk.

Type of Talk

Fletcher et al. (2008), Greenwood et al. (2011), Hart & Risley (1995), Robins et al. (2014), and Rush (1999) all found that the children in their study who were exposed to, and actively involved in, adult-child talk (either in play, story book reading, or everyday activities) acquired larger vocabularies than those children who were not spoken to or exposed to large amounts of talk. Hart and Risley (1995) found that on average per hour, the high SES children were exposed to 2153 words, and they produced 1116 words, which was higher than the children from the middle SES who were exposed to 1251 words on average per hour and produced 749 words per hour, and the lower SES children who were exposed to 616 words and produced only 525 words.

Hart and Risley (1995) and Norman-Jackson (1982) both reported the number and type of encouragements and discouragements adults used when interacting with their children. Their findings showed that lower SES adults used more discouragements and higher SES adults used more encouragements. The results were interesting as Hart and Risley (1995) found that children who received more encouragements tended to produce more language and children who received more discouragement produced less talk. Norman-Jackson found similar results in that children who did not produce high levels of language received more discouragements

(59 times more discouragements) and children who did produce high levels of talk received more encouragements (7 times more encouragements).

Language exposure and Language Development

Children start processing language from an early age. Fernald et al. (2013) followed 48 English-learning infants from different income groups for 24 months using real-time measures (direct observation) of spoken language processing. Their goal was to track the developmental changes in processing vocabulary learning in the sample and to observe the differences in crucial aspects of early language development in relation to family socioeconomic status. They found that infants as young as 18 months of age showed disparities in vocabulary and language processing efficiency between higher and lower income status families. They also found that children from lower SES produced fewer words at 24 months (4 to 573 words) than children of higher SES at 24 months (59 to 665 words).

Early language development appears to be associated with later academic achievement. Seven studies found that children's language development was linked to the variety and diversity of the type of talk used by their parents/caregivers. Children from these families used more elaborating, questioning, and more exploratory questions in their own language more often than children who were not exposed to such diversity (Curenton et al., 2008; Hart & Risley, 1992; Huttenlocher et al., 2010; Pungello et al., 2009; Robins et al., 2012; Song et al., 2014). These results showed that children with such diversity in language were more likely to succeed through school and were able to keep up to date with the curriculum.

Critique

There were a number of limitations to the 14 sourced studies. Only four studies provided detailed information regarding the actual number/frequency of words spoken and the types of talk spoken between the parents and their children (Fernald et al., 2013; Greenwood et al., 2011; Hart & Risley, 1995; Norman-Jackson, 1982). The remaining 10 studies reported means and percentage without the actual frequency of the words recorded, thus comparisons between studies was difficult.

The categorisation of talk was also problematic as each study used different definitions of talk and types of talk. The difficulty was that the same name was used in different studies to refer to different variables or to variables measured in different ways (see Curenton et al., 2008; Hart & Risley, 1992; Huttenlocher et al., 2010; Lukie, Skwarchuk, LeFevre, & Sowinski, 2014; Pungello et al., 2009; Robins et al., 2012; Song et al., 2014). Defining talk from the different syntax used during reading to different styles of talk such as statements, questions, encouragements, and discouragements, and making comparisons between these studies was difficult. Using the same definitions would help make it possible to begin to identify the variables which are critical to young children's language development.

Reliability of the direct observations was also problematic as only 10 studies reported reliability data. Inter-rater reliability is essential in order to ensure that objective measurements are taken and that observer bias is controlled for (Gay, Mills, & Airasian, 2011).

In articles where the differences between the SES groups were observed, the number of families that were recruited for each SES group was different and the low-income families tended to be under represented. It would be difficult to generalise the

findings to other families in these income groups. For example, Hart and Risley (1995) had only 6 families from welfare families while the high SES and middle SES were represented by 13 and 23 families, respectively.

Rationale

The consensus between the 14 reviewed studies was that more studies need to be undertaken to specifically record the number of words and the type of language spoken between parents and children across the different income groups. It also appears that the amount and type of language children are exposed to, and the practice and use when they are younger impacts on their future language development and therefore their future performance at school.

The studies under review all report verbal language but there does not appear to be any studies that observe and record non-verbal talk that occurs during adult-child interactions. Likewise, the seminal work Hart and Risley (1995) is now 22 years old. Given that it is reported that young children are now entering school with limited oral vocabulary in New Zealand (Jones, 2014), it is important to address this lack of research in this important developmental area. This current study aimed to fill this gap by observing adult-child interactions in New Zealand homes in 2016.

Purpose and Objectives

This research extends the work of Hart and Risley (1995) by investigating the frequency and type of talk that young children are exposed to during dinnertime with their families in New Zealand. The purpose of this study was to observe if socioeconomic status influenced the number and type of verbal and non-verbal language and communication and the number of positive and negative interactions

(both verbal and non-verbal) between parents/caregivers and their young children during dinner times in their home setting.

Research Questions

The following questions were investigated during this study.

1. Do parents/caregivers from different income backgrounds vary in the frequency of talk they engage in with their children at dinnertime and if so, what were these differences?

2. Do parents/caregivers from different income backgrounds vary in the type of talk that they engage in with their children at dinnertime, and if so, what were the different types of talk these parents engage in?

3. Is there a difference between the number of encouragements and discouragements in families from different income backgrounds at dinnertime and if so, what were these differences?

4. Is there a difference between the non-verbal interactions in families from different income backgrounds at dinnertime and if so, what were these differences?

Table 1.
Summary of the studies which indicate frequency and type of language, social economic status, maternal education, and home environment and how they affect young children's language.

Author/Date	Design	Participants	Measures	Dependent Measure	Relibility	Results
Curenton, S. M., Craig, M. J., & Flanigan, N. (2008).	Descriptive Over 60 mins	33 mothers and 33 preschoolers (19 males and 14 females) aged between 36 - 66 months. SES: 13 in poverty, 4 in near poverty, and 16 above poverty.	Direct observation through video taping Measures: reading/word decoding subset of the Wide Range Achievement Test-3	Assessing decontextualized text across story contexts between mothers (of different levels of literacy skills) and child.	Inter-rater reliability = 100%	Mothers with advanced literary skills were more likely to make decontextualized comments/questions and use mental/linguistic verbs during the interactions. Type of Talk Statistics: Type of talk used across interactions: Wilks's $\Lambda = .14$, $F(3, 30) = 29.86$, $p < .001$, $\eta 2 = .48$ Within subjects interaction effect for speaker and type of talk: Wilks's $\Lambda = .41$, $F(3, 30) = 10.91$, $p < .001$, $\eta 2 = .25$
Fernald, A., Marchman, V. A., & Weisleder, A. (2013).	Descriptive longitudinal over 6 months	48 children: 22 males and 26 females - 18 months to 24 months. Parent N.R.* Low SES = 23 High SES = 25	Direct Observation through Videotaping. Measures: Parents MacArthur-Bates Communicative	Mean number of spoken words between children from different SES families	Inter-rater agreement of 97% for shifts in gaze and 98% for gaze location	Children from lower SES groups, spoke significantly fewer words than children from higher SES groups. Lower SES: 18 months = 5 to 503 words, 24 months = 4 to 573 words.

			Development Inventory - Words & Sentences. Children: Looking while listening (LWL)			Higher SES: 18 months = 16 to 471 words, 24 months = 59 to 665 words.
Fletcher, K. L., Cross, J. R., Tanney, A. L., Schneider, M., & Finch, W. H. (2008).	Descriptive Longitudinal over 6 months	87 children (44 boys and 43 girls) and their caregivers – SES all families lower	Direct Observation through Videotaping. Measures: MacArthur-Bates Communicative Development Inventory (at 24 months and then at 30 months) and Stony Brook Family Reading Survey.	Relationships between 24-month-old children's language, frequency of caregiver's reported reading and reading strategies on the children's language skills at 30 months.	N.R.	Children's language at 24 months was related to reported frequency of caregiver's reading. The higher the frequency of caregiver reading, higher the frequency of child's language. The child's attention during the reading was not related to the children's language frequency. Caregiver's reading techniques had a significant impact on children's attention. The more questions they used, the higher the child's attention levels were. The caregiver's usage of questions and expansions lead to more attention on the story by the children which lead them to positively develop their quality of language. Correlation between receptive

						and expressive language at 24 months ($r = .66$, $p < .01$) and at 30 months ($r = .68$, $p < .01$). CMIN/DF fit index was 1.5 Comparative fit index was .91 Root mean square error of approximation was .06
Greenwood, C. R., Thiemann-Bourque, K., Walker, D., Buzhardt, J., & Gilkerson, J. (2011).	Descriptive Longitudinal over 10 months Twelve hour-long videos were collected weekly at home	30 infants and toddlers aged between 12 and 21 months, and at least one of their parents/caregivers. Videos were recorded by the families at their home. SES was middle to upper	Digital audio recordings. Measures: LENA, Bayley Scales of Infant Development (BSID-III), Preschool Language Scale (PLS-4), and Parent Reading Achievement Assessment: STAR reading	Comparison between the frequency of language of children from mothers of varying educational levels.	N.R.	The child of the most talkative parent also produced more vocalizations and conversational turns month to month. Adult word count per day ranged from 631 to 36,563. Child vocalizations per day ranged from 11 to 5611. Conversational turns per day ranged from 2 to 1499 Adult females provided 64% of the daily words heard by the child. Children in families whose mothers had more than a high school education said 514.8 more words to their children per day than mothers who had attained less education. The children of the more educated mothers were more responsive, producing 193.7

						more vocalizations and 47.6 more conversational turns than did children in families with only a high school education. The adult males in the more educated families produced 454 fewer words than did adult males in the other group. Children with the more educated mothers heard a net difference of 161 more adult words than their counterparts.
Hart, B., & Risley, T. R. (1992).	Descriptive longitudinal over 2.5 years – hourly recordings once every 2 weeks at the participants' homes.	40 children (18 boys and 22 girls) – first recording was when the average age of the children was 9 months and last recording was at 36 months. Parents family income range between $4000 - $68,000.	Direct observation Used aspects of the HOME inventory.	Which aspects of parenting were sufficiently and stably different among the families to be of importance to individual differences in child development.	Inter-rater reliability = 98%	The amount of parenting per hour and the quality of parental verbal content associated with that parenting were strongly related to the social and economic status of the family and the subsequent IQ of the child. The lower SES spoke considerably less words than the higher SES families Correlation across periods: The first factor had strong positive loadings on the variables present (.92), joins (.94), words (70), and different words (.71). The second factor had strong positive loadings on responds (.76), turns

						(.63), and MLU distance (.60). The third factor had positive loadings on repeats (.64) and questions (.89) and negative loading on prohibitions (-.75). The correlation with IQ was r = .63; the beta weights were .22 for the first factor, t(3, 36) = 1.74, p < .09; .16 for the second factor, t(3, 36) = 1.24, p < .22; and .57 for the third factor, t(3, 36) = 4.42, p < .001.
Hart, B., & Risley, T. R. (1995).	Descriptive longitudinal over 2.5 years	42 families – first recording was when the average age of the children was 9 months and last recording was at 36 months. Parents Upper SES = 13 families Working Families = 13 Benefit Families = 6 Mixed ethnicities.	Direct observation and audio tape recording Once per month for one hour in family home at dinner time	The frequency and type of talk between different income groups. Number of encouragements and discouragements	N.R.	There were significant differences for the frequency of talk and type of talk between the 3 SES groups. Number of words spoken by children at 24 months High SES: 1116 words Middle SES: 749 words Low SES: 525 words An estimate of daily adult word count in the range of 400 to 900 per hour for their welfare parents, 1,000 to 1,500 per hour for working class parents, and 1,500 to 2,500 per hour for their professional parents.

						Number of words per hour heard by children High SES: 2153 Medium SES: 1251 Low SES: 616
Huttenlocher, J., Waterfall, H., Vasilyeva, M., Vevea, J., & Hedges, L. V. (2010).	Descriptive One 90min visit to the participants' homes every four months for 9 different visits.	47 parent-child dyads Recording started when children were 14 months. SES not reported.	Direct Observation through Videotaping	The role of caregiver in speech language development	Inter-rater reliability = 95%	Diversity of earlier caregiver speech significantly predicts corresponding diversity in later child speech and vice versa showing mutual influence (t_{45} = 3.05, p = .004) SES was found to be related to language growth and is partially mediated by differences in caregiver speech – showing influences of caregivers (t_{262} = 3.44, p = .001).
Norman-Jackson, J. (1982).	Descriptive longitudinal 2 visits at the start then again after 5 years.	21 children aged between 24 – 42 months, and their sibling aged between 5-6 years. All low-income families	Direct Observation through audio tape recording. Measures: Stanford-Binet Intelligence Scale, Form L-M, 1972 norms, Gray Oral Reading Test, Form A, Human	The differences between preschoolers that had 2 contrasting levels of reading achievement	Inter-rater reliability = 96.5%	Siblings of preschoolers with higher reading achievement had significantly more mature language than the siblings of the lower reading achievement preschoolers. M = 135, (SD = 65 48) and M = 85 5 (SD = 33 75), f(13) = 1 80, p < 05 Unsuccessful readers received

			interaction Scale.			significantly more parental discouragement to child-initiated verbal interactions than did successful readers. For encouragement, M = 6 51% (SD = 7 22), and for discouragement, M = 1 59% (SD = 2 18), f(6) = 174, p < 25
Pungello, E. P., Iruka, I. U., Dotterer, A. M., Mills-Koonce, R., & Reznick, J. S. (2009).	Descriptive longitudinal over 18 months	146 families From 18 months through till 36 months. Four different SES: African American middle and low SES, and European middle low SES.	Structured direct observation of mothers and their children doing measures and tasks separately and together both at home or at a testing room.	Associations between SES, race, maternal sensitivity, and maternal negative-intrusive behaviours, and language development.	N.R.	Maternal Sensitivity is significantly important for language development The intra-class correlations for the sensitivity and negative intrusive composites were .90 and .85, respectively. Maternal sensitivity was negatively correlated with maternal negative intrusiveness (r .58, p .001). Children in lower SES families demonstrated a slower rate of growth for expressive language skills when compared with children in higher SES families Perception of financial resource availability was related to maternal depression and less positive mother– child

						interactions, which, in turn, affected children's cognitive and language development Differences in growth in vocabulary between high SES and low SES children (ages 16–31 months) was fully accounted for by maternal speech, with higher SES mothers speaking in longer utterances, using richer vocabulary, and producing more complex sentences than lower SES mothers
Robins, S., Ghosh, D., Rosales, N., & Treiman, R. (2014).	Descriptive Meta-analysis	533 children from 32 different studies – children for middle to upper SES were under 3 years old and lower SES were 3-5 years old	Examined parent – child conversations transcribed in the CHILDES database – home and laboratory setting	SES differences in letter knowledge	Inter-rater reliability between 88% - 94% Chen's coefficient were above 0.75	Lower SES focused on alphabetic sequence and simple associations between the child's name and letters of the alphabet for longer than their higher SES counterparts (p=0.41). Higher SES children had\ more opportunities to learn about how letters can combine to form a range of words (p=0.35). No SES differences were found in the factors that influenced the use of particular letter names. (p=0.40)

Robins, S., Treiman, R., Rosales, N., & Otake, S. (2012).	Descriptive Meta-analysis	533 children from 32 different studies - Children for middle to upper SES were under 3 years old and lower SES were 3-5 years old	Examined parent – child conversations transcribed in the CHILDES database - home and laboratory setting	Early print awareness of children SES differences in print awareness	Inter-rater agreement overall was at 90%. Inter-rater agreement for sound verbs was 97% Kappa scores were above .67 except for coding the sound verbs, which was at .26.	Lower SES families appeared to focus more on alphabetic order than higher SES families. (p = .017) Lower SES families place a greater emphasis on alphabetical sequence than higher SES families and may be directing their children toward less relevant aspects of emergent literacy. (p = .046) Lower SES mothers report believing that helping children with basic letter-related skills, such as memorizing the alphabet, is more important than fostering enjoyment in learning to read – this would lead to children of lower SES to not enjoy reading as much and therefore not engage in that activity as often as the children of higher SES.
Rush, K. L. (1999).	Descriptive – 1 hour recording.	39 children (20 girls and 19 boys) and caregivers. Children's age started at 52 months to 66 months. All	Direct observation by recording data on a computer Measures: Peabody Picture and Vocabulary	Assessing the early literary skills and expressive and receptive vocabulary skills and their	Inter-rater reliability = 98.8%	The degree of caregiver involvement, rate of language interactions, and participation in early literacy activities were related to higher early literary and language skills. The higher the involvement, the better the

		participants were recruited from Head Start. Data collected at home visit.	Test-Revised, and the Expressive One-Word Picture Vocabulary Test. Nine multiple choice questions from Stony Brook Family Reading Survey.	correlations with measures of caregiver-child interactions at home.		language development in children (M = 55%, SD = 28.6%)
Schlieper, A. (1975).	Descriptive 30 minutes observation at research office at a time suitable for the parents.	23 mother – child dyads (16 lower SES, 7 middle SES) - Children aged between 2 years 10 months to 4 years 2 months. Data collected in home setting	Direct observation by noting down how the mothers work through tasks.	Language differences between lower and middle SES families	N.R.	The low SES mothers were more and more restricting, criticizing, interfering (0.02 average frequency). They also showed a non-significant tendency to engage in more interactive play (0.10 average frequency).
Song, L., Spier, E. T., & Tamis-Lemonda, C. S. (2014).	Descriptive at home	70 mother-child dyads Children aged between 2 and 3 years old. All low income families	Direct Observation through Videotaping for 10 minutes. Measures: Mental Development Index (MDI), and Peabody Picture Vocabulary Test	The frequency of reciprocal associations between early maternal language use and children's language and cognitive development.	Inter-rater reliability = 90%	Maternal language related to children's lexical diversity at each age. Maternal language and child's cognitive development showed a reciprocal relationship. The child's development at age 2 influenced the type of maternal language used when the child was at age 3 and likewise the language mothers used when the child was

						age 2 influenced the child's cognitive development at age 3 (r=0.29, p<.05).

Note: *N.R =Not reported

CHAPTER 3

Method

Ethical Considerations

Ethical approval for this study was provided by the University of Canterbury Human Ethics Committee (HEC 2015/64, refer to appendix A and B).

Recruitment

Recruitment for this study was conducted through various Early-learning centers, pre-schools, and kindergartens in the Christchurch area and through the professional networks of a member of the supervisory team. In order to recruit participants, advertisements inviting participation in the study were placed at the various described facilities. In these advertisements, a short description of the study was provided along with contact information requesting that interested parents contact the researcher (see Appendix C). Upon contacting the researcher, a meeting with the families was organized in order to discuss the study in detail. In order to be eligible for inclusion in the study, the families had to meet the following criteria: (a) the families had to consist of two adult parental figures, and two children, (b) one child was required to be 3 or 4 years of age, (c) both children were typically developing, and (d) the oldest sibling had to be no more than 6 years old. These criteria were selected to ensure all the families were comparable and the ages of the children were chosen to observe the talk used at home when both children of preschool age.

Prospective participants were provided with an information sheet describing the study and its requirements during the initial meeting with the family (See Appendix D).

They were then given the opportunity to ask questions. If the families chose to participate, consent forms were provided for the family to complete (See Appendix E). Once consent was obtained, a suitable videoing timetable was organized with the families. Information and assent were provided for the children as well (See Appendices F and G). A short unstructured interview was then conducted on the family (See Appendix H).

Setting

Data collection occurred at the participants' family home where the family normally ate their dinner. Two of the families ate their dinner at a table in their dining room, and one family ate their dinner at a table in the kitchen. The video camera was placed in an area near the dining table where the whole family could be viewed.

Participants

Three families were recruited as participants. Those families that met criteria were recruited on a first-come-first-served basis. Two families were recruited from the high-income group and one family was recruited from the middle-income group. Family incomes were calculated by combining the annual income of each family member. The middle income family was earning between $65,001-$85,000, and the high income families were earning more than $85,000. The income groups were selected based on the New Zealand Socio-economic index 2006 (Milne, Byun, & Lee, 2013).

The parental figures in the families varied in age from 20 to 38 years and occupations. The children ranged from 1 year to 6 years of age. One family had the older child attending preschool and the younger child stayed at home with her father

during the day or attending day care. Two families had their oldest child in primary school and youngest child in preschool. Please refer to Table 2 below for an overview of each family's demographics.

Table 2
The demographics of each family that participated in the current study

	Family 1	Family 2	Family 3
Income Group	Medium ($65,001-85,000) Primary adult is employed and second adult is a stay-at-home dad	High (>85,001) Both adults employed	High (>85,001) Primary adult employed, second adult is a University student
Age	Adult 1 (Female): Age not disclosed Adult 2 (Male): Age not disclosed Target child Female 4 years Sibling (Female): 1	Adult 1 (Male): 38 years Adult 2 (Female): Age not disclosed Target child Male 3 years Sibling (Female): 6	Adult 1 (Female): Age not disclosed Adult 2 (Female): 20 years Target child Male 3 years Sibling (Male): 6
Employment	Adult 1 Administrator Adult 2: Stay-at-home dad Target Child: preschool Sibling: day care/stays at home with dad	Adult 1 Building contractor Adult 2: Accountant Target Child: preschool Sibling: Primary school	Adult 1 Teacher Adult 2: Student Target Child: preschool Sibling: Primary school

Study Design

For this study, a cross-sectional descriptive design was used. Descriptive designs are used to describe the behavior of an individual or set of individuals at a certain point in time, without investigating relationships between specific variables (Gray & Bjorklund, 2014). This research compared the frequency of different variables among different income groups at dinnertime. A cross-sectional design is most appropriate for this research as the relationship between the variables is not analyzed.

Materials

One video camera was used to videotape the families eating dinner. The camera was placed on a tripod for stability. A Sony video camera and tripod was sourced from the University of Canterbury's Audio Visual Centre. Coding sheets were developed so that the verbal and non-verbal language could be scored and analysed from the video footage. A coding sheet was developed and consisted of the different types of talk that were being observed with a space for providing a tally of the number of times that particular behaviour was used by a family member. These codes included different types of initiations, responses, encouragements, discouragements, and non-verbal communication. The verbal interactions between the adults or between the children were coded separately to the interactions between the adult and the target child interactions. Please refer to Appendix I for a copy of the coding sheet.

A password-protected computer was used to store and play the videos. Headphones were used to listen to the videos so as to reduce external audio interference making it easier to listen to the words spoken in the videos and to maintain confidentiality.

Coding

The following codes were applied when transcribing the videos and were based on the codes used by Hart and Risley (1995).

Identifying the interactions. Analysis of the transcript began with identifying each of the interactions that were contained in the transcript. The transcripts consisted of both verbal and non-verbal interactions.

1) ***Verbal interactions***. Interactions were coded as verbal interaction if the interaction was one in which anyone said or whispered something.

2) ***Non-verbal interactions*.** Non-verbal interaction was coded if the interaction was one in which anyone used expressions or gestures to communicate.

Classifying the initiations. The following types of adult initiations were coded:

1) ***Requests*.** Instructions, or invitations to complete/start a particular task were coded under requests. These could take the form of a question e.g., “Would you like to eat some dessert?” or “Would you like to sit down?”

2) ***Commands*.** A command was an instruction in which someone told the child what to do or what to do next and the need for compliance from the child was clearly implied (e.g., "Please set the table"). A command was coded as a prompt when it includes a reference to a rule or a procedure.

3) ***Questions*.** Questions are another form of initiation in which the aim of its use was clearly to engage the child in a conversation, to continue a

conversation with the child or to elicit a verbal response (answer) from the child (e.g., “How was your day?”, or “what did you do today?”).

4) ***Explorative Questions*.** These questions usually started with the leading word "why?” These questions were used to encourage the child to think deeper about their previously provided response or to understand certain behavior.

5) ***Statements/Contributions*.** Any utterances that provide information were coded as being statements/contributions in the conversation. This information could include explanations for why things were done in a particular way, (e.g., I had a busy day today) or it could be information about a certain topic that was being discussed.

6) ***Prompts*.** These were demonstrations or statements in which an adult or sibling showed or told the child what to do or say or how to do it or say it. Prompts often followed errors made by the child. There were times that instructions or Commands were said in reference to a rule or a procedure (e.g., when the family rule was to say "please” when asking for something, that parent might say "what do you say?" to elicit the required response from the child instead of explaining the whole rule to them). These references were coded as prompts.

Child initiations. The following were distinguished:

1) ***Questions***. These were initiations made by the child to start a conversation. These include open questions and closed questions. *Open questions* required a long response (e.g., " what did you do today?" "Why

did you do that?"). *Closed questions* could be answered through short responses (e.g., "How was your day?" "Did you eat lunch today?").

Classifying the responses. The following types of adult responses were coded.

1) ***Non-verbal responses.*** These responses included any gestures or facial expressions used between two or more people in place of verbal communication (for example, shaking head, nodding head, shrugging etc).

2) ***Encouragements.*** An encouragement was defined as anything positive being said or positive non-verbal expressions being used as a reaction to the child's response or performance. For example, words/statements that were synonymous with positive meaning (“that is great”, “good job”, nods while smiling, happy expressions etc). This could be partially determined by the tone and/or by the content of the statement.

3) ***Discouragements.*** Any negative reaction to a child's response, behaviour, or performance was coded as a discouragement. The negative affect could be demonstrated by the tone used, non-verbal expressions being used, and/or the content of the statement e.g., words/statements those are synonymous to bad and negative (“Stop that right now”, “don’t do that”, “be quiet”, expressions such as frowning, scowling, unhappy expressions etc). Discouragements included critical or perfunctory replies and also replies that implied that the child was wrong. Discouragements also included:

a. *Prohibitions*. These were forms of discouragements that were used to intervene in what the child was doing in order stop or restrict that action or behaviour. Prohibitions normally took the form of a stop command, or a reminder that certain behaviour is not allowed in a particular scenario (e.g., that's not how you sit at the table etc). Compliance was clearly expected when prohibitions were used. An assertive tone was commonly used but not always. To differentiate between prohibitions and commands, commands were considered an instruction to the child to start doing something now, while a prohibition was a response to a child's misbehaviour and used to reduce or stop that behaviour.

4) ***Elaborations.*** Elaborations were recorded when a parental figure repeated what the child had said but in a form that was more grammatically correct, in better words, or in an elaborated form (e.g., when child said "I is sitting here first", the parent responded with "the right way of saying that sentence is, 'I was sitting here first'" etc).

Child responses. Children's responses to parental initiations were classified as follows:

(1) ***Short responses.*** These were responses that consisted of one-word answers (e.g., "yes"), two-word answers (e.g., "I did"), or three-word answers (e-g. "I don't know").

(2) ***Long responses/explorative responses.*** These were answers that consisted of four or more words (e.g., "I don't know who did it" "I had a good day today because...").

Counting the Interactions

Each transcript was broken up into the number of interactions (conversations) that occurred during the dinner period. A change in conversation was noted every time the topic, of which the family was speaking about, changed to another topic or if there was a pause of 3 seconds or more.

Data Collection

The following procedures were used.

The video was set up to record before the family's dinnertime and recording was stopped after dinner was finished. Due to unexpected events, there was one instance where the option for the family to switch recording on and off was offered.

Once all of the data was collected, the videos were downloaded onto a computer with password protection (to ensure confidentiality) and then transcribed word-by-word into text by the researcher. The transcribed text was typed onto a word format on the computer. To maintain confidentiality, the videos were viewed in an area where the footage was not visible to others. Once transcription was complete, the researcher coded the transcript (as explained above).

As a show of gratitude, a small koha of $50 was presented in the form of a supermarket voucher to each family once the recordings were complete.

Procedures

The observation procedure was video recording. Video showed the interactions between the families and also the non-verbal communication that occurred in the family. Dinnertimes were video recorded during the family's usual dinnertime (for

example, 5pm-6pm). The video was static and was set up by the researcher before the dinner began and removed when dinner was finished. The researcher pressed record and then left the premises and therefore was not present during the dinnertime period. The family texted the researcher after their dinner was finished and the researcher returned to the home, switched the recording off and packed up the equipment.

Recording occurred for six dinner periods over a time frame of ten weeks. The first two video sessions were not transcribed to allow for bias in conversation due to the video camera being present and to allow the family to become familiar with the video camera. The length of the dinnertimes varied in each of the families, so to keep the data comparable over all families, only the first 20 minutes were transcribed (due to the shortest dinnertime being 20 minutes long). Transcribing started from when the target child (the one attending preschool) took their first bite of food and ended after 20 minutes. The transcripts were coded and transcribed in a conversational style and codes were applied to each sentence spoken on the transcription.

Reliability

A research assistant was recruited and information was provided about the study (Appendix J). Once consent was obtained (Appendix K), the research assistant was trained to provide inter-observer reliability checks. The training consisted of 2 hours of supervised practice in coding one transcription from a dinner conversation. When the research assistant was coding with 95% accuracy on all codes, training was complete.

The research assistant coded 30% of the transcriptions and their data was compared to the data coded by the researcher. The reliability was calculated by using the following formula: number of codes that were in agreement divided by total number

of agreements and disagreements multiplied by 100, which equaled to the percentage of inter-rater reliability. The inter-rater reliability was then calculated to be 98%.

Data Analysis

After the data was transcribed, it was coded onto coding sheets (see Appendix I). Each code was then tallied for each family to obtain numerical data for the frequency and types of initiations and responses for both adults and children. These tallies were added up to get the total number for each family. The totals were then displayed onto a table.

CHAPTER 4

Results

This chapter describes the data collected from three families over four 20-minute dinnertimes. The adult talk will be reported first, with the frequency of the adults' talk, types of talk and responses, and the number of encouragements and discouragements will be reported. Children's talk then is reported describing the frequency of their talk and the type of talk they used.

Adults

This section reports the frequency of adult talk and the type of talk the adult used with the children from the three families during the four 20-minute dinnertime sessions.

Frequency of adult talk. Table 3 below indicates the total number of words spoken by the two adults in each of the three families to the target child and their siblings across four 20-minute (total = 80 minutes) dinnertime video observations for each family. The adults in Family 1 (middle-income) spoke a total of 7438 words and addressed approximately 93 words per minute to both children. This equates to 5579 words spoken per hour to both children. In Family 2 (high-income), the adults spoke a total of 6896 words and addressed 86 words per minute to both children. This equates to 5172 words spoken per hour to both children. The remaining high-income family, Family 3, spoke a total of 9035 words which equated to 113 words per minute to both children. This was estimated to 6776 words per hour to both children. In all three families, the mother spoke more words to the children than the other adult in the home; which was the father in Families 1 and 2, and an adult cousin in Family 3.

Table 3
Total frequency of words spoken by the adults in three families to the target child and their sibling over four dinnertimes

Families	Income bracket	Adult 1	Adult 2	Total number of words spoken
1	Medium (joint income of $65,000-$85,000)	5571 (=70 words per minute)	1867 (=23 words per minute)	7438
2	High (joint income of $85,000 and above)	4312 (=54 words per minute)	2584 (=32 words per minute)	6896
3	High (joint income of $85,000 and above)	5575 (=70 words per minute)	3460 (=43 words per minute)	9035

Types of adult talk. Table 4 below summarises the number and types of initiations (statements, closed questions, open questions, commands, requests and exploratory questions) and responses (elaborations, one-word responses, non-verbal responses, elaborations, prompts, and conversations) made by adults to the children or in response to the child's talk during the four, 20-minutes video observations at dinnertime for the three families.

Adult initiations. The most common form of talk across the three families were *statements*, that is, normal conversational sentences that did not require a response. An example of a statement was "I had a busy day today". Adults from Family 1 used 298 *statements*, which equated to 41% of their dinnertimes. Adults from Family 2 used 234 *statements*, which equated to 25% of their dinnertime. Adults from Family 3 used 377 *statements,* which equated to 38% during the four, 20-minute dinnertimes.

Even though all the families used a high number of statements, Family 3 recorded the most. The second most common form of talk was *closed questions*. These were questions that could be answered with one word. An example of a closed question was "did you like it?". Adults from Family 1 used 178 *closed questions*, which equated to 25% of their dinnertime conversations, adults from Family 2 used 200 *closed questions*, which equated to 21% of their dinnertime conversations and adults from Family 3 used the most with 255 *closed questions,* which equated to 25% of their dinnertime conversations over the four, 20-minute dinnertimes. Even though Family 3 used almost twice as many closed questions as Family 1, the percentages are the same due to the overall number of words spoken my Family 3 being more than that of Family 1.

The six adults did not use *open questions, commands, or requests* often with the children. *Open questions* were questions that required an answer that is longer than one word e.g. 'what did you do today?'. *Commands* were instructions that were expected to be followed e.g. 'stop it'. *Requests* were when the children were asked to do something e.g. 'please pass me the salt'. Families 1 and 3 used 30 *commands* and 53 *commands* respectively while Family 2 used 72 *commands*. *Requests* were similar for Families 1 and 3 with 22 and 26 recorded respectively, while Family 2 used 53 *requests*. *Open questions* were used 45 times by Family 1, Family 2 recorded 78 and Family 3 recorded 71.

The adult talk that occurred least among all the families were *exploratory questions*, that is, questions starting with "why". An example of an *exploratory question* is "why did you go to the museum today?". This form of initiation was used

in Families 2 and 3 only 6 and 8 times respectively. Family 1 recorded 1 *exploratory question* during their four, 20-minute dinnertimes.

***Adult responses*.** Overall, the three families' responses to their children's interactions were limited over the four-dinnertime periods. *Elaborations* (elaborating on a certain topic), *one-word responses* (yes, no etc), *non-verbal responses* (shrugs, nodding, shaking head etc), and *prompting* ("what do you say?" or "what's the magic word?") occurred at low levels with a range between 1 and 8 occurrences.

Frequency of conversations. The conversations were tallied as different when the topic changed or there was a break longer than 3 seconds between the topics. Family 1 had the highest number of conversations at 120, followed by Family 2 with 91 and Family 3 with 87. The higher the number of conversations, the less time the family spent on each topic. The most common topic that families talk about were the child's school day and about how the adults' days went. Other topics included holiday/weekend plans, friends or family members. In summary, the higher income families used more different types of talk while the middle-income family spoke the most words.

The mothers spoke the most words in all three families. The mothers in Family 1 and Family 3 spoke the most with a similar number of words with 5571 words and 5575 words respectively. The mother of Family 2 spoke 1259-1263 words less than the mothers in Families 1 and 3 with 4312 words. The second adult (fathers or cousin) spoke less than the first adult. The father of Family 1 spoke the least number of words with 1867 words, the father of Family 2 spoke 2584 words and the adult cousin from Family 3 spoke almost twice as much as the father from Family 1 with 3460 words.

Table 4
Frequency and percentage of talk and responses in three families by the two adults to the target child and their sibling during dinnertime

Types of talk and responses		Family 1 Middle SES	Family 2 High SES	Family 3 High SES
		Number and Percentage		
Initiations	Statements	298 (41%)	234 (25%)	377 (38%)
	Closed Questions	178 (25%)	200 (21%)	255 (25%)
	Open Questions	45 (6%)	78 (8%)	71 (7%)
	Commands	30 (4%)	72 (8%)	53 (5%)
	Requests	22 (3%)	53 (6%)	26 (3%)
	Exploratory Questions	1 (0.1%)	6 (1%)	8 (1%)
Responses	One word responses	42 (6%)	32 (3%)	48 (5%)
	Non-Verbal responses	30 (4%)	24 (3%)	39 (4%)
	Elaborations	16 (2%)	20 (2%)	21 (2%)
	Prompts	1 (0.1%)	8 (1%)	5 (0.5%)
	Conversations	120	91	87
	Total number of initiations and reactions	728	943	1002

Encouragements, discouragements, and prohibitions. Table 5 below outlines the number and the corresponding percentage of time the adults spent providing *encouragements*, *discouragements*, and *prohibitions* in the three families over the four recorded dinnertimes.

Family 2 used the highest number of *encouragements* where 101 were recorded. This equated to 11% of the family dinnertimes being spent with two adults

encouraging the children. Examples of these encouragements included “well done!”, and “good girl/boy”. The middle-income family, Family 1 recorded 52 encouragements, which equated to 7% over the four dinnertimes, while Family 3, a high-income family, used only half the number of encouragements of Family 2 with 48 spoken and this equated to 5% of the dinnertimes. The encouragements used were quite similar across all the families with the most common encouragement being ‘good girl/boy’.

While Family 1, the middle-income family, recorded approximately half the encouragements as Family 2, Family 1 only used 3 *discouragements* and 10 *prohibitions* over the four dinnertimes. In comparison, Family 3 recorded 16 discouragements and 35 prohibitions while Family 2 recorded the most discouragements with 46 and 69 prohibitions. Both these families were in the high-income bracket. The most common discouragements were ‘stop doing that’, ‘don’t do that’, and ‘stop talking’, and were used in all three families. The most common prohibitions used were ‘be quiet’, ‘sit properly’, and ‘eat quickly’, which were again commonly used in all three families.

All families used appropriate *non-verbal expressions* to their statements and therefore the number of negative emotions was proportionate to the number of discouragements and prohibitions used per family. For example, if an adult said ‘stop it’, then they had stern expressions (which was recorded as a negative expression) while saying it. *Non-verbal expressions* also matched positive statements. For example, if the adult said ‘well done’ they had a smile or a similar positive expression to go along with the term.

Table 5
Frequency of Non Verbal, Encouragements, and Discouragements used by three families to a target child and sibling over four, 20-minute dinnertimes.

	Family 1 Middle SES	Family 2 High SES	Family 3 High SES
Encouragements	52 (7%)	101 (11%)	48 (5%)
Prohibitions	10 (1%)	69 (7%)	35 (3%)
Discouragements	3 (0.4%)	46 (5%)	16 (2%)

Note: Percentage denotes time spent giving encouragements and discouragements

Adult Talk Summary

The frequency and type of talk and responses was varied across the three families. All the adults spoke to the children and used a variety of talk. Family 2 used the most variety of talk, followed by Family 3. Family 2 used more encouragements and discouragements than both families 1 and 3. The main difference between the income groups was that both of the higher income families, Families 2 and 3 used more variety of talk in their dinnertime language when compared to Family 1. However, the middle-income family used more encouragements than discouragements and prohibitions with the target child and sibling, unlike Families 2 and 3 who both used more discouragements and prohibitions than encouragements.

Child Talk

The frequency and type of talk that occurred by the target children and their siblings from the three families over the four 20-minute dinnertime sessions is now reported. Table 4 below reports the differences in the number of words spoken by the

three target children and their siblings over the four, 20-minute video observation in the three different families.

Target child frequency of talk. During the four observations, the target child for Family 1 spoke 2638 words, which calculates to 33 words per minute. This can be estimated to be 1979 words per hour for this child. The target child in Family 2 spoke a total of 2311 words. This equates to 29 words per minute, which is estimated to be 1733 words per hour. The target child from Family 3 spoke a total of 847 words, which was 11 words per minute and was estimated to be 635 words per hour. The target child in Family 3 spoke the least number of words and the target child in Family 1 spoke the most number of words. Table 6 below outlines the total number of words spoken by the target children and their siblings.

Table 6
Total number of words that were spoken by the target child and siblings to adults or each other over four dinnertimes at home.

Families	Income bracket	Target Child	Sibling
Family 1	Middle (joint $65,000-$85,000)	2638 (= 33 words per minute, 1979 words per hour)	50
Family 2	High (joint $85,000 and above)	2311 (= 29 words per minute, 1733 words per hour)	2155 (= 27 words per minute, 1616 words per hour)
Family 3	High (joint $85,000 and above)	847 (=11 words per minute, 635 words per hour)	1874 (=23 words per minute, 1406 words per hour)

Note: The sibling in Family 1 was 1-year-old.

Sibling frequency of talk. In Family 1, the sibling from the middle-income family talked baby talk 50 times. This language consisted of various sounds and vocal emissions made by the toddler as a means of communication yet this is not talk that

can be understood as conversational English. In Family 2, the sibling spoke a total of 2155 words, which equated to 27 words per minute. This is estimated to be 1616 words per hour for this sibling. The sibling of Family 3 spoke a total of 1874 words, which equated to 23 words per minute, which is 1406 words per hour.

Types of child talk. The type of talk from the target children and their sibling to the adults in their families over four dinnertimes are presented in Table 7 below. This table shows the number of *full sentences*, *one-word*, *two-word*, and *three-word talk*, and *non-verbal responses* made by the children. This table also shows the frequency and type of talk (open questions, and closed questions) that was observed from the children to either adults or each other during the four, 20-minute video recordings.

Target child's type of talk. The talk that was the most common for the target children in all families were full sentences. *Full sentences* were sentences that were longer than three words. The target child of Family 1 used 199 *full sentences* 59% of the time, which was almost twice as much as the target child of Family 3 who used *full sentences* only 35% of the time. The target child of Family 3 used 36 *non-verbal communications*, which is twice as much as that of Family 2's target child and five times as much as the target child in Family 1. The target child for Family 1 and 3 were similarly low in their usage of *open questions* (7 and 5 respectively), while the target child of Family 2 used open questions three times more with 28 open questions. The target child of Family 2 also used the most number of closed questions with 37 while the target child from Family 1 and 3 used them 15 and 14 times, respectively. *Three-word responses* were similar across the target child of Family 1 and Family 2. Family 1 target child used these 29 times, and target child 2, 26 times, with the target

child in Family 3 used half as many three-word responses with only 13. The number of times the target children used one-word responses were quite different with the target child from Family 1 using these 58 times, Family 2 using them 48 times, and Family 3 using them less than half the times as Family 1 with 25 times. Family 1 and Family 3's target children used *two word responses* at a similar rate of 14 and 13 times, respectively while the target child in Family 2 used two-word responses 17 times.

Table 7
Frequency and percentage of the initiations and responses from children to adults

		Family 1		Family 2		Family 3	
Types of talk and responses		Target Child	Sibling	Target Child	Sibling	Target Child	Sibling
Talk	Closed question	15 (5%)	NA	37 (12%)	17 (7%)	14 (9%)	47 (16%)
	Non-verbal responses	15 (5%)	NA	34 (11%)	8 (3%)	36 (22%)	32 (11%)
	Open questions	7 (2%)	NA	28 (9%)	22 (9%)	5 (3%)	37 (13%)
	Baby Talk	NA	50	NA	NA	NA	NA
Response	Full sentence response	199 (59%)	NA	129 (40%)	137 (56%)	58 (35%)	96 (34%)
	One word response	58 (17%)	NA	48 (15%)	25 (10%)	25 (15%)	35 (12%)
	Two word response	14 (4%)	NA	17 (5%)	17 (7%)	13 (8%)	19 (7%)
	Three words response	29 (9%)	NA	26 (8%)	17 (7%)	13 (8%)	20 (7%)

***Sibling's type of talk*.** The sibling in Family 1 was a one-year old child who mumbled and engaged in some vocalisations/verbalisations but these verbalisations could not be discerned clearly thus were not coded. The sibling from Family 3 used more initiating talk over all when compared to the sibling from Family 2. The Family 3 sibling used over twice as many closed questions (47 compared to 17) e.g, 'is that for me?' or 'can I get some pudding?', almost four times as many non-verbal responses (32 compared to 8) such as shrugs, and nods, and used open questions such as 'what does that mean?' 37 times while the sibling from Family 2 used these 22 times.

The sibling from Family 2 used 137 *full sentence* responses while the sibling from Family 3 used full sentences 96 times. For all other types of responses, both the siblings used these at a similar rate to each other: both used two word (17 for family 2 and 19 for family 3) and three word responses (17 for family 2 and 20 for family 3) of the time and sibling of family 3 used *one word responses* slightly more with 35 times while sibling of Family 2 used them 25 times.

Child Summary

The frequency and type of talk recorded in the three families varied. There were a number of differences with Family 3's target child when compared to the target children in Families 1 and 2, in terms of the type of talk that were used. The main differences were in the number of words spoken where the target child in Family 3 used the least number of words and the least variety of talk. The target child from Family 2 used more initiations than the other two target children and the target child from Family 3 spoke the least.

Overall the sibling from Family 3 spoke a higher frequency of variety of talk than the sibling from Family 2. The sibling from Family 2 however spoke more full sentences than the sibling from Family 3.

Overall Summary

All three families talked at dinnertime. The adults talked to the children and the children all talked back. Family 3 adults used a higher frequency of words but the variety of talk, when compared to Family 1 and Family 2 adults, was not as much. The children in Family 2 spoke the least number of words but used a larger variety of talk in proportion to their frequency. Overall the sibling of family 2 spoke less than the target child of Family 2, while the sibling of Family 3 spoke more than the target child of Family 3.

CHAPTER 5

Discussion

Language spoken at home provides the foundation for a child's growth and further language development and aids in social interaction with the outside world (Curenton et al., 2008). The current study aimed to record the frequency and type of talk spoken in the family home during dinnertimes with three families from two different income groups and to see if there were any differences in the frequency and type of talk between these families.

Having the dinnertimes on video allowed the replay of segments where language could initially not be heard. Few difficulties were experienced in being able to understand the children and their families. The families understood that their dinnertime was to be as it normally would have been if the camera wasn't present. There were some instances, when the children were curious about the camera, however, overall the children were able to ignore the camera and carry on, as they normally would do at dinnertime. It seemed to have been a helpful factor to not have the observer present for the recordings as it enabled more of a natural setting for the families.

Variables influencing the findings are now reported.

Recruitment

The recruitment of families proved to be difficult. Originally, the researcher intended to recruit six families, that is, two families from low, medium, and high income groups however, this was not the case. To recruit, posters were delivered to a number of preschools with the study's criteria. To encourage participation, the

criterion was altered later to encourage more participants from the lower and middle income groups, as they were the hardest groups to recruit from. The income brackets were increased from $0-$50,000 to $0-65,000; 50,000-$75,000 to $65,000-$85,000; and $75,000 and above to $85,000 and above. The Koha for participating was increased from $20 to $50.

Feedback from families who inquired about participating indicated that the number of dinnertimes requested as well as the fact that the dinnertimes were being videotaped were the main reasons for non-participation as they were worried that their normal dinnertime routines would be disrupted and they also worried about an outsider recording and viewing their private time. Overall, only three families from the middle and upper income groups were able to be recruited.

This study had four research questions to answer.

Research Question One: *Do parents/caregivers from different income backgrounds vary in the frequency of talk they engage in with their children at dinnertime and if so, what were these differences?*

Frequency of Adult Talk. Small differences were found in the frequency of talk by parents/caregivers from different incomes to their children. The frequency of talk from the adults found in this study was similar to the frequency of talk found in previous studies. Hart and Risley (1992; 1995), Huttenlocher et al. (2010), and Schlieper (1975) all found that families from a higher income group have a higher frequency of talk when compared to middle or lower income groups. The current study showed that high income families (Families 2 and 3) spoke more to their children than did the middle income family by over one thousand words. All three families talked about the daily activities and of any special events that were coming

up but Families 2 and 3 did this with much more elaboration (e.g., Easter was a topic, as well as relatives visiting, and friends staying over at their houses). The fact that the sibling of the middle income family was a toddler may have affected the total number of words spoken for that family.

The results indicated that for all the three families in the study, adults spoke considerably more to their children than the children spoke to them. Adults used approximately twice the number of words than the children. The frequency of talk in all families was always higher for the females when compared to the males for this study. The adult cousin in Family 3 was a female and spoke considerably more words at dinnertime than the fathers in Families 1 and 2. This difference in gender was consistent with the findings of Eriksson et al. (2012), Greenwood et al. (2011), and Longobardi et al. (2016).

Frequency of child talk. All the children in the current study participated in active conversations with their siblings and the adults at dinnertime. The target child from the middle-income family spoke the most number of words at 2638. This finding was inconsistent with those found by Fernald et al. (2013) and Hart and Risley (1995) where they found that children from the higher families had a higher frequency of talk. However, this finding was consistent with Greenwood et al. (2011), where they found that the child of a talkative parent tended to be more talkative. The mother from Family 1 was very talkative and spoke the most number of words. However, the target child of Family 3, a high income family, spoke the least number of words with only 847 words spoken. This finding was inconsistent with Greenwood et al. (2011) as the adults in Family 3 spoke the highest number of words. This may be due to the gender

differences in talk as the target child of Family 1 was female while the target child of Family 3 was a male.

When compared to Family 1 and 3, the children of Family 2 spoke the most words overall. An explanation for this finding could be that the sibling in Family 1 was a baby and could not engage in full verbal conversation. The combined number of words spoken by the two siblings of Family 3 was the lowest of all the children which was a surprising finding as the siblings were aged 3 and 6 years and typically at this age, children engage with each other and others in full verbal talk. Perhaps a reason for this finding was that both the siblings in Family 3 were males and thus had similar experiences to share. They both played with similar toys and engaged in similar games and both tended to be shy in nature.

In terms of the variety of the children's talk, the results in this study were consistent with Greenwood et al. (2011) and Hart and Risley (1995). The target children from the two high-income families used more variety in their language with more than twice the number of closed questions, four times as many open questions, and over twice the number of non-verbal responses when compared to the target child from the middle income family.

Research Question Two: *Do parents/caregivers from different income backgrounds vary in the type of talk they engage in with their children at dinnertime, and if so, what were the different types of talk these parents engage in?*

Language is an important aspect of communication and a parent is a child's first teacher. The findings of this study showed that all the adults used a variety of language with their children, however, the adults in the higher income families used more variety of talk. For example, where the middle income family used one

exploratory question, the higher income families used up to eight exploratory questions. The parents of the high income families expanded their language by asking more 'why' questions and they also stayed with one topic for longer in the conversation turns than the middle income family. A difference in the families was found in the number of commands given to the children where the high income families gave almost double the number of commands when compared to the middle income family. This may have been due to the adults of Families 2 and 3 having more active conversations with their children when compared to the adults of Family 1, who had conversations with each other as well as with their children. When actively conversing and observing the children, the adults of Families 2 and 3 may have had more occasions where they had to discipline their children.

With the exception of commands, an explanation for the difference in the type of talk used could be due to the parents' education level and employment status in the higher income families. For example, one adult in the higher income family was a teacher and so perhaps was more likely to be aware of the importance of using more elaborate language with her children. This finding was supported by Curenton et al. (2008), Greenwood et al. (2011), Hart and Risley (1995), Norman-Jackson (1982), and Pungello et al. (2009), where they found that mothers with higher education have and used more variety in their language.

Research Question Three: *Was there a difference between the number of encouragements and discouragements in families from different income backgrounds at dinnertime and if so, what were these differences?*

The results from the current studies were inconsistent with previous studies, in that, unlike Hart and Risley (1992; 1995), Norman-Jackson (1982), and Pungello et

al. (2009) the middle-income family used more encouragements than discouragements while the two higher-income families used more discouragements than encouragements.

This difference in the families could be due to differences in the age of the children. The sibling in Family 1 was a toddler, and over the dinnertime there were lots of encouragements for her to sit and eat her dinner. For example, when the toddler pointed at a piece of carrot and mumbled baby talk, the mother responded with the correct name of the vegetable and then gave encouragements and smiles. The temperament of the children may also have been a factor. Family 1's children appeared to be very calm in behaviour and both followed adult instruction at a higher rate when compared to the children of Families 2 and 3. Their compliance could have led to more encouragements than discouragements being made to them.

The most common discouragement used was telling the children to stop procrastinating and eat their dinner, or to behave themselves. Families 2 and 3 used a high number of this form of discouragements. The children of Family 2 conversed with each other and encouraged each other's non-compliance which led to their parents giving an increased number of discouragements and disciplining them often. The children in Family 3 were the shyest of all the children, however, the target child in this family did not comply to the instructions which led to his parent and caregiver using more discouragements and disciplinary language than the other families.

Research Question Four: *Was there a difference between the non-verbal interactions in families from different income backgrounds at dinnertime and if so, what were these differences?*

All the families used non-verbal communication at a similar rate over the four dinnertimes. Non-verbal communication included nods, shrugs, smiles, and head shakes. The target children used more non-verbal interactions than their respective siblings. The middle income family had the lowest number of non-verbal interactions as they used verbal comments with their children. Both the adults and the children of Family 3 had high numbers of non-verbal communication. There could have been an imitative relationship between the frequency of the adults' non-verbal communication to the frequency of the children's usage where the more the adults use non-verbal communication, the more the children used it as well. However, the male children used more non-verbal communication than the female children, and as Family 3 had two male children, this may have been the explanation for the high number of non-verbal communication.

Implications of the Findings

This study highlights some important points. The results obtained indicate that all families talk to each other at dinnertime. However, there were a low number of elaborations in the conversations during this time. Talk that could be reduced were statements and closed questions. These could be replaced with open-ended and exploratory questions. Given that children need to hear language in order to imitate language, reciprocal interactions need to occur and with this, language can be elaborated. Exploratory questions were used the least in all the families and this meant the children missed opportunities where they could expand on their language

usage. The more the parents elaborate the more exposure the children will get to the variety of language and the more likely they will be in imitating that language and increase the number of words they can acquire.

Limitations

There are several limitations to this study. The main limitation was the small number of participants. Recruiting lower income families was very difficult than the other income groups. This could have been due to the lower income families not wanting to be videoed and 'judged', or could have been due to lower income families possibly having more children than the study's criteria stated. Some lower income families also live in a joint-family situation, which meant they were not able to participate in the study.

Another limitation was that the length of the transcription had to be determined by the shortest family dinnertime. The duration of the dinnertime could not be controlled and so to keep the results comparable across families, the data could only be recorded from the shortest dinnertime which was 20 minutes. This limited the language samples coded and analysed.

The use of the video camera may have altered the families' normal dinnertime behaviour. However, this bias was likely to be present across all the families so this may have been nullified.

Challenges

The transcribing of the videos provided a record of adult, sibling, and target child's talk. Some indecipherable words were inevitable due to children moving around or whispering or speaking softly to themselves or others around them and the video

camera could not clearly pick up every single word spoken. This issue was mostly limited to self-talk, where the child spoke very softly to themselves. When utterances such as “mm”, “aha” or “um” are made, they have been coded as non-verbal interaction. Words that were synonymous to yes and no, such as “yeah”, “nah”, “yep” etc were counted as verbal responses as they are accepted in our society as alternatives to “yes” and “no”.

Future Research

Areas for future research could study gender differences in the frequency and type of talk, and how the parents interact with children of different genders. Likewise, it would be interesting to observe how the children’s frequency and type of talk differed when conversing with adults of different genders. The frequency and type of talk within various cultures could also be studied. Observing interaction differences with children with intellectual or physical disabilities and their parents is another area of future research.

Conclusion

All the families actively conversed with each other at dinnertime. The adult and child females in the family had a higher frequency of talk than the adult and child males. A high income family (Family 3) had the highest frequency of talk and both high income families (Families 2 and 3) had the most variety in their type of talk. An unexpected finding was that the middle income family used more encouragements than discouragements while the high income families used more discouragements than encouragements.

The middle income family used the lowest number of non-verbal interactions. The children that used the most number of non-verbal interactions also had parent/caregivers that used the most non-verbal interactions which suggests that some level of imitation may be present for non-verbal interaction talk in families. Gender may have been a factor in this aspect as male children used a higher number of non-verbal communication than female children.

For all three families, the children were exposed to a wide range of language, but for the children's language to be extended, the parents could consider extending and elaborating the language they use with their children.

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Appendix A

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2015/64

23 July 2015

Pragnya Indugula
School of Health Sciences
UNIVERSITY OF CANTERBURY

Dear Pragnya

The Human Ethics Committee advises that your research proposal "Frequency of talk in six New Zealand families at dinnertime" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 22 July 2015.

Best wishes for your project.

Yours sincerely

Lindsey MacDonald
Chair
University of Canterbury Human Ethics Committee

Appendix B

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2015/64

15 October 2015

Pragnya Indugula
School of Health Sciences
UNIVERSITY OF CANTERBURY

Dear Pragnya

Thank you for your request for an amendment to your research proposal "Frequency of talk in six New Zealand families at dinnertime" as outlined in your email dated 14 October 2015.

I am pleased to advise that this request has been considered and approved by the Human Ethics Committee.

Yours sincerely

Lindsey MacDonald
Chair, Human Ethics Committee

Appendix C

ARE YOU INTERESTED IN YOUR CHILD'S LANGUAGE DEVELOPMENT???

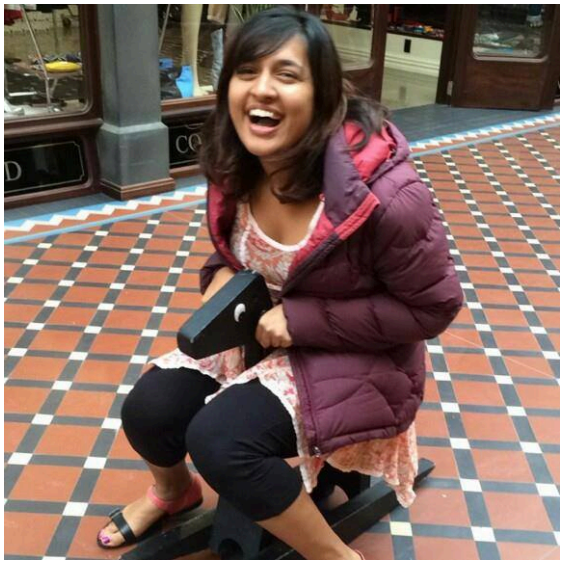
I am a Masters of Science (Child and Family Psychology) student and I am looking for six families to partake in a study that will observe the frequency and type of talk occurring at dinnertime.

If you are a family with

- **English as your main conversational language**
- **Two adults**
- **Two children (between the ages of 1-5 years - one child being 3-4 years in age)**

Then I AM LOOKING FOR YOU!!!

Please contact Pragnya Indugula at npi23@uclive.ac.nz for more information.



Thank you for your consideration!!

THIS PROJECT HAS BEEN APPROVED BY THE UNIVERSITY OF CANTERBURY HUMAN ETHICS COMMITTEE

Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz	Pragnya Indugula npi23@uclive.ac.nz

Appendix D

School of Health Sciences

Child and Family Programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Frequency of Talk in Three New Zealand Families at Dinnertime

Information sheet for parents

My name is Pragnya Indugula and I am undertaking my Master of Science thesis in Child and Family Psychology. I am interested in investigating language interactions in families. Through my thesis project I aim to record the type and frequency of talk that occurs between children and their family members during dinnertime.

If you decide to participate, your family will be video-recorded at dinnertime and I will then transcribe the videos to record the frequency of talk and the type of language used.

What this means is that everything remains "just the same" as it normally does at dinnertime. Videoing will take place at dinnertime approximately for an hour per session, for no more than 10 times over a 6-week period. There will be no more than a total of 10 hours of involvement over a 6-week period and one meeting prior to the videos beings taken.

There are no unforeseen risks associated with this project. Participation is voluntary and you have the right to withdraw up until the second week of recordings (approximately the fourth session) without penalty. If you withdraw, I will remove all information relating to you up until the last recording taken of you and your family.

A thesis is a public document and will be available through the UC Library. The results of the project may be published in a journal and conference presentation. At all times, you may be assured of the complete confidentiality of data gathered in this project. To ensure anonymity and confidentiality, each family will be assigned a number and will be referred to as that number.

My two supervisors, a research assistant, and myself will be the only ones with access to the data. The data will be securely stored in a locked cabinet and password protected computer. If you have any questions, you can contact my senior supervisor, Dr. Gaye Tyler-Merrick, at gaye.tyler-merrick@canterbury.ac.nz. She will be pleased to discuss any concerns you may have about participation in the project.

If you wish, you can receive a copy of the project results by contacting the researcher at the conclusion of the project.

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

If you agree to participate in the study, you are asked to complete the consent form and return to me.

Kind Regards,
Pragnya Indugula (npi23@uclive.ac.nz, 0212069778)

Appendix E

School of Health Sciences

Child and Family Programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Frequency of Talk in Three New Zealand Families at Dinnertime

Consent form for parents

- ☐ I have been given a full explanation of this project and have had the opportunity to ask questions.
- ☐ I understand that my family will be videoed at our normal dinnertime for one-hour at a time, for up to 10 times.
- ☐ I understand that participation is voluntary and I may withdraw up until the second week (approximately the fourth session) of recordings. Withdrawal of participation will also include the withdrawal of any information I have provided should this remain practically achievable.
- ☐ I understand that any information or opinions I provide will be kept confidential to the researcher and her supervisors and that any published or reported results will not identify the participants.
- ☐ I understand that a thesis is a public document and will be available through the UC Library.
- ☐ I understand that only Pragnya, her two supervisors, and her research assistant will have access to the data and that all data collected from the study will be kept in locked and secure facilities and/or in password protected computer and will be destroyed after 5 years.
- ☐ I understand that I am able to receive a report on the findings of the study by contacting the researcher at the conclusion of the project.
- ☐ I understand there are no unforeseen risks associated with this project.
- ☐ I understand that I can contact the researcher, Pragnya Indugula at npi23@uclive.ac.nz or 0212069778 or the senior supervisor, Gaye Tyler-Merrick at gaye.tyler-merrick@canterbury.ac.nz

☐ If I have any complaints, I can contact the Chair of the University of Canterbury Human Ethics Committee, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

☐ By signing below, I agree to participate in this research project.

Parent one:

Name:

_____

Date:

_____

Signature:

_____

Phone number: _____

Parent two:

Name:

_____

Date:

_____

Signature:

_____

Phone number:

_____

Please return this form to Pragnya Indugula.

Kind Regards,

Pragnya Indugula
npi23@uclive.ac.nz

Appendix F

School of Health Sciences

Child and Family programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Frequency of Talk in Three New Zealand Families at Dinnertime

Information sheet for Child

My name is Pragnya Indugula and I am doing a project at the university. I am really interested in seeing families talking to each other. With your permission I want to video you and your family at dinnertime for about 10 times to see what you say and do at this time.

I will videotape you, your brother/sister (as applicable), mum, and dad talking to each other and then I will count all the words you say to each other during this time. Nothing will change; everything will be just as it always is. I will come to your house before dinner to set-up the video camera, will leave, and then return to pack up the camera after your dinner.

As your family has been selected, you will get a code name so that no one will know your name, your brother/sister's (as applicable) name, or your mum's, or dad's names.

Your mum and dad have also been asked to help. If you have any questions, you can talk to your mum, dad, or me about your queries. If you change your mind about being in the project, that's fine, too. All you have to do is tell your mum or dad or me.

Thank you for helping with the project.

Kind Regards,

Pragnya Indugula

Appendix G

School of Health Sciences

Child and Family programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Frequency of Talk in Three New Zealand Families at Dinnertime

Consent form for Child

- ☐ Pragnya told me about the project.
- ☐ With my family, I am happy to be videoed at dinnertime.
- ☐ I know that any information collected about me will not be told to anyone else and will be stored away in a locked cabinet and password-protected computer.
- ☐ Pragnya will also not use my name, my brother/sister's (as applicable) name or my parents' names in her report. I will receive a code number.
- ☐ I understand that I can change my mind about being in this project and no one will mind.
- ☐ I know that if I have any questions I can ask my parents or Pragnya or Gaye, her teacher.

Child's name: _____

Signed by Child (or on behalf of the child)

Parent signature: _____

Date: _____

Appendix H

Unstructured Interview

1. Information sheet and consent forms
2. What are the names of you and your family members?
3. What ethnic group do you identify with?
4. How old are your children?
5. Out of the three income groups mentioned in the advertisement, which group do you fall under?
6. What are your and your partner's qualifications?
7. Do you have extended family or support groups (such as church, community groups etc) and what are they?
8. Does your child attend preschool? If yes, what days of the week does he/she go to preschool?
9. To what level are your extended family and support systems involved to your everyday family life?
10. Does your family have any health problems that may affect the videos? E.g. asthma, migraines etc
11. How would you describe your child's development (physical, emotional, and mental)?
12. Does your child have many friends? How many? How often do they interact?

Appendix I

Coding Sheet

Adults

Requests (instructions to start/invitations to complete a particular task):

Explorative questions (why):

Closed questions:

Open questions:

Statements (commands):

Contributions (explaining info):

Prompts (demonstration/statements of how to do something):

Encouragements:

Discouragements:

Prohibitions:

Elaborations:

Non-verbal responses:

Children

Open questions:

Closed questions:

One-word responses:

Two word responses:

Three word responses:

Full sentence response:

Non-verbal responses:

Overall

Conversations:

Total number of words for family:

Total number of words for A1:

Total number of words for A2:

Total number of words for T:

Total number of words for S:

Appendix J

School of Health Sciences

Child and Family programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Frequency of Talk in Three New Zealand Families at Dinnertime

Information sheet for Research Assistant

My name is Pragnya Indugula and I am doing my Masters of Science thesis in Child and Family Psychology. Through this research I am aiming to document the type of talk and the frequency of talk that occurs between children and their family members during dinnertime.

I will train you to help me code the resulting videos. You will be required to code/record data and to store this data safely.

This data is confidential and anonymous.

It is of utmost importance that confidentiality and anonymity is kept at all times in regards to the videos as they are of families during their dinnertime.

Kind Regards,

Pragnya Indugula

Appendix K

School of Health Sciences

Child and Family programme

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Frequency of talk in six New Zealand families at dinnertime

Consent form for Research Assistant

- ☐ I understand that I will be coding and transcribing the videos that Pragnya will record of families during their dinnertime.
- ☐ Due to the private nature of the videos, I understand that I must maintain confidentiality in terms of the names and content of the videos that I will be working with.
- ☐ I will be trained to code the videos.
- ☐ I will safely store the data in its appropriate place.
- ☐ By signing below, I agree to participate in this research project.

Name:

_____

Date:

_____

Signature:

_____

Phone number:

_____